

(19)



Europäisches Patentamt  
European Patent Office  
Office européen des brevets

(11) Publication number:

**0 385 797**  
**A3**

(12)

# EUROPEAN PATENT APPLICATION

(21) Application number: 90302233.3

(51) Int. Cl.<sup>5</sup>: **G01N 33/84, G01N 31/22,**  
**G01N 33/18**

(22) Date of filing: 01.03.90

(30) Priority: 02.03.89 US 318800

(43) Date of publication of application:  
05.09.90 Bulletin 90/36

(94) Designated Contracting States:  
DE FR GB IT NL

(98) Date of deferred publication of the search report:  
26.09.90 Bulletin 90/39

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(54) **A method and apparatus for detecting transition and rare earth elements in a matrix.**

(57) A method and apparatus for the detection of selected trace transition elements, earth elements, or both, in an aqueous sample including the same, together with alkali metals, alkaline earth elements, or both, provide for

(a) flowing said sample through chelator means, comprising ion exchange means, under conditions for retaining substantially all of the transition elements and rare earth elements in said sample but for retaining only part of said alkali metals and alkaline earth metals in said sample,

(b) flowing a first eluant through said chelator means capable of stripping and removing in a waste stream the retained alkali metals and alkaline earth metals, but not transition elements and rare earth elements from the chelator means,

(c) flowing a second eluant through said chelator resin means to strip the retained transition

elements and rare earth elements therefrom and form a chelator effluent stream,

(d) flowing the chelator effluent stream from step (c) through concentrator means, comprising ion exchange means, to retain said transition elements and rare earth elements therein while passing the remainder of said chelator effluent stream,

(e) discontinuing the flow of said chelator effluent stream to said concentration means,

(f) passing a third eluant, comprising an aqueous solution of a chelator complex agent, through said concentrator means, under conditions to elute at least selected ones of said transition elements and rare earth elements in chelated complexes in a concentrator effluent stream, and

(g) passing said concentrator effluent stream to a detector in which said selected transition elements and rare earth elements are detected.

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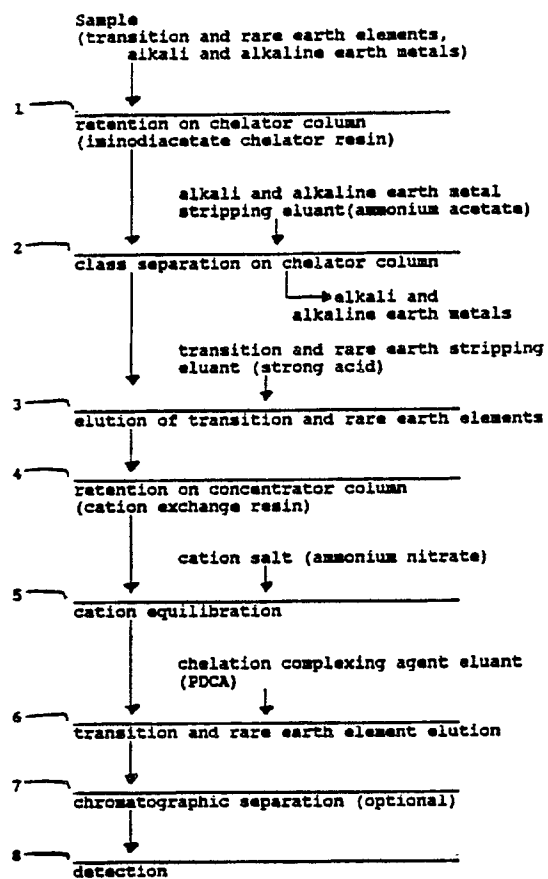


Figure 1



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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
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The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 19 JULY 1990	Examiner DE KOK A.J.
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons ..... & : member of the same patent family, corresponding document			



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A	EP-A-88628 (THE COMMONWEALTH OF AUSTRALIA) * page 4, line 35 - page 6, line 17 *  * pages 10 - 14 *  ---	1-3, 10, 11, 22-24 28, 31-33, 36, 37	
A	US-A-3955927 (C.A. ZELASKOWSKI ET AL) * the whole document *  ---	1	
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